

VSA MYP Mathematics Year 10 Topic Planner



(Extended Maths Objectives **highlighted**)

Time for this unit: 4 weeks (5 lessons per week. 50 mins/lesson)

| Weeks | Topic | General Aims By the end of this unit students should be able to: | Specific VSA Learning Objectives By the end of this unit students should know/be able to: | Main Resource(s) |
|----------|---|---|--|--|
| 30 to 33 | Vectors & Matrices | <ul style="list-style-type: none"> ➤ Understand what vectors are and how they are added ➤ Appreciate that matrices can store numerical information ➤ Perform routine matrix arithmetic ➤ Use matrices in an analysis of a network | <ul style="list-style-type: none"> ➤ Distinguish between a scalar and a vector ➤ Represent displacement vectors diagrammatically as well as with column vectors ➤ Add and subtract displacement vectors, multiplication by a scalar ➤ Components of vectors, magnitude of a vector ➤ Vectors in the form $a\mathbf{i} + b\mathbf{j}$ ➤ Scalar product of two vectors (2-D only) ➤ Appreciate that numerical data in a rectangular table can be stored in a matrix ➤ Know and understand key matrix vocabulary – row, column, order, determinant, inverse, identity ➤ Add, subtract and multiply matrices ➤ Understand that matrix multiplication isn't commutative ➤ Find the inverse of a 2x2 matrix ➤ Use the inverse of a 2x2 matrix to solve for X in $AX = B$ ➤ Use matrices to solve simultaneous equations ➤ Use adjacency matrices to explore networks (directed and undirected) ➤ Possible extension – further network analysis such as shortest distance algorithms | MEP Pupils Vector Booklet |
| | | | | Support Resources |
| | | | | Various worksheets |
| | | | | Mathletics |
| | | | | www.interactivemaths.net/ |
| | Guiding Question | Main Areas of Interaction Focus | | Learner Profile |
| | How are Social Networks like other networks? | Human Ingenuity – Mankind has invented and developed ways of representing objects/phenomena, and these ways often lead to the generation and manipulation of numerical information. | | Inquirers – Students explore a range of phenomena that lend themselves to matrix treatment Thinkers – Students connect matrices to events in real life Communicators – students understand that complex inter-relationships share many similar properties |
| | | Technology | | Assessment |
| | | <ul style="list-style-type: none"> ➤ Various applets exist to show vector addition (eg at http://www.interactivemaths.net/) ➤ GDC to manipulate matrices | | Investigation (Criteria B, D) |
| | | Embedded Enquiry | | Cross-curricular Links |
| | | Students can explore various types of networks – from road networks to social ones. | | Science (especially physics) needs us to be able to distinguish between scalars and vectors Science – Food webs |
| | ATL | Communication Skills: Specific mathematical notation and language needs to be used Problem Solving & Thinking Skills: Independently construct a number of plans to tackle a problem, and identify the most suitable plan. | | |